Attachment to Resolution No. R8-2004-0001

(Proposed Basin Plan amendment changes are shown as ~~strikeout~~ for deletions and underline for additions)

Chapter 3, "Beneficial Uses":

- **p. 3-3:** "More than one beneficial use may be identified for a given waterbody. The most sensitive use must be protected. ~~Water quality objectives are established (Chapter 4) which are sufficiently stringent to protect the most demanding use.~~ The Regional Board reserves the right to resolve any conflicts among beneficial uses based on the facts in a given case."

Add the following new sections prior to "Beneficial Use Tables" on page 3-5:

GROUNDWATER

Groundwater subbasin boundaries included in the 1975 and 1984 Basin Plans, and initially in this 1995 Basin Plan, were, for the most part, based on data and information collected in the 1950's and 1960's. Since these boundaries were first established in the 1975 Basin Plan, a considerable amount of new water level, water quality and geologic data has become available. As part of the 2004 update of the TDS/Nitrogen management plan in the Basin Plan (see further discussion of this work in Chapter 5 – Salt Management Plan), these new data were used to review and revise the sub-basin boundaries.

To accomplish this task, all available geologic studies of the Santa Ana Region, through 1995, were gathered and re-analyzed. A comprehensive database of water level and water quality data and well drilling logs was created and utilized to delineate revised groundwater subbasin boundaries, now designated as groundwater "Management Zones". The groundwater Management Zones are shown in Figures 3-3 through 3-7.

The specific technical basis for distinguishing each groundwater Management Zone is provided in the report entitled "TIN/TDS Study – Phase 2A Final Technical Memorandum," Wildermuth Environmental, Inc., July 2000. In general, the new groundwater Management Zone boundaries were defined on the basis of (1) separation by impervious rock formations or other groundwater barriers, such as geologic faults; (2) distinct flow systems defined by consistent hydraulic gradients that prevent widespread intermixing, even without a physical barrier; and (3) distinct differences in water quality. Groundwater flow, whether or not determined by a physical barrier, was the principal characteristic used to define the Management Zones. Water quality data were used to support understanding of the flow regime and to assure that unusually high or poor quality waters were distinguished for regulatory purposes.

In addition to these technical considerations, water and wastewater management practices and goals for the Chino Basin were considered and used to define an alternative set of Management Zone boundaries for that area. These so-called "maximum benefit" Management Zone delineations , shown in Figure 3-5a, were developed as part of recommendations by the Chino Basin Watermaster and the Inland Empire Utilities Agency (IEUA) to implement a "maximum benefit" proposal, including an Optimum Basin Management Plan (OBMP), for the area. These agencies have committed to the implementation of a specific set of projects and requirements in order to demonstrate that the "maximum benefit"

Management Zone boundaries , and particularly the "maximum benefit" nitrate-nitrogen and TDS objectives for these Zones (see Chapter 4), assure protection of beneficial uses and are of maximum benefit to the people of the state (see Chapter 5, VII. Maximum Benefit Implementation Plans for Salt Management, A. Salt Management – Chino Basin and Cucamonga Basin). These "maximum benefit" Management Zone boundaries apply for regulatory purposes provided that the Regional Board continues to find that the Watermaster and IEUA are demonstrating "maximum benefit" by timely and appropriate implementation of these agencies' commitments. If the Regional Board finds that these commitments are not being met and that "maximum benefit" is not being demonstrated, then the Management Zone boundaries for the Chino Basin shown in Figure 3-5b apply for regulatory purposes.

PRADO BASIN MANAGEMENT ZONE (PBMZ)

The flood plain behind Prado Dam has unique hydraulic characteristics. Chino Creek, Cucamonga Creek (which flows into Mill Creek) and Temescal Creek join the Santa Ana River behind the dam. Flood control operations at the dam, coupled with an extremely shallow groundwater table and an unusually thin aquifer, significantly affect these surface flows, as well as subsurface flows in the area. Depending on how the dam is operated, surface waters may or may not percolate behind the dam. There is little or no groundwater storage in the flood plain behind the dam. Any groundwater in storage is forced to the surface because the foot of Prado Dam extends to bedrock and subsurface flows cannot pass through the barrier created by the dam and the surrounding hills. Given these characteristics, this area is designated as a surface water management zone, rather than a groundwater management zone. The Prado Basin Management Zone is generally defined by the 566-foot elevation above mean sea level. It extends from Prado Dam up Chino Creek, Reach 1A and 1B to the concrete-lined portion near the road crossing at Old Central Avenue, up the channel of Mill Creek (Prado Area) to where Mill Creek becomes named as Cucamonga Creek and the concrete-lined portion near the crossing at Hellman Road, up what was formerly identified as Temescal Creek, Reach 1A (from the confluence with the Santa Ana River upstream of Lincoln Avenue) (this area is indistinguishable because of shifting topography and is now considered a part of the Prado Basin Management Zone), and up the Santa Ana River, Reach 3 to the 566-foot elevation (just west of Hamner Avenue). The Prado Basin Management Zone encompasses the Prado Flood Control Basin, which is a created wetlands as defined in this Plan (see the discussion of wetlands elsewhere in this Chapter). Orange County Water District's wetlands ponds are also located within the Prado Basin Management Zone.

The beneficial uses of the proposed PBMZ include all of the beneficial uses currently designated for the surface waters identified above. The PBMZ also incorporates the Prado Flood Control Basin. The beneficial uses previously identified for this Basin are designated also for the Zone (See Table 3-1, Beneficial Uses, page 3-25).

The Prado Basin Management Zone is shown in Figure 3-2.

Insert the following Figures:

- Figure 3-2 Prado Basin Management Zone Boundaries
- Figure 3-3 Management Zone Boundaries San Bernardino Valley and Yucaipa/Beaumont Plains
- Figure 3-4 Management Zone Boundaries – San Jacinto Basins
- Figure 3-5a Management Zone Boundaries – Chino (Maximum Benefit), Colton and Riverside Basins
- Figure 3-5b Management Zone Boundaries – Chino (Antidegradation), Colton and Riverside Basins
- Figure 3-6 Management Zone Boundaries – Elsinore – Temescal Valleys
- Figure 3-7 Management Zone Boundaries – Orange County Basins

- **Revise p. 3-17, 3-18, 3-19 and 3-25 (Table 3-1 BENEFICIAL USES – INLAND SURFACE STREAMS AND WETLANDS) as shown in the following pages.**

- **Delete pages 3-26 through 3-28, Table 3-1 BENEFICIAL USES - GROUNDWATER SUBBASINS and replace with the following new pages 3-26 through 3-28. NOTE: Big Bear Valley, Garner Valley and Idyllwild Area are identified in the current Basin Plan as groundwater subbasins. They are identified as groundwater management zones in the new pages, shown below. No changes to the boundaries of these groundwater bodies are proposed.**

Figure 3-2 Prado Basin Management Zone Boundaries

Figure 3-3 Management Zone Boundaries San Bernardino Valley and Yucaipa/Beaumont Plains

Figure 3-4 Management Zone Boundaries – San Jacinto Basins

Figure 3-5a Management Zone Boundaries – Chino (Maximum Benefit), Colton and Riverside Basins

Figure 3-5b Management Zone Boundaries – Chino (Anti-degradation), Colton and Riverside Basins

Figure 3-6 Management Zone Boundaries – Elsinore – Temescal Valleys

Figure 3-7 Management Zone Boundaries – Orange County Basins

Table 3-1 Beneficial Uses

Excerpt, Page 3-17, 3-18

INLAND SURFACE STREAMS	BENEFICIAL USE																				HYDROLOGIC UNIT	
	MUN	AGR	IND	PROC	GWR	NAV	POW	REC1	REC2	COMM	WARM	LWRM	COLD	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST	Primary	Secondary
San Timoteo Area Streams																						
San Timoteo Creek																						
~~Reach 1 - Santa Ana River Confluence to Gage at San Timoteo Canyon Road~~	~~+~~	~~I~~			~~I~~			~~I[3]~~	~~I~~		~~I~~				~~I~~						~~801.52~~	~~801.53~~
Reach 1A – Santa Ana River Confluence to Barton Road	+	I						I[3]	I		I				I						801.52	
Reach 1B – Barton Road to Gage at San Timoteo Canyon Rd	+	I			I			I[3]	I		I				I						801.52	
Reach 2 - Gage at San Timoteo Canyon Road to Confluence with Yucaipa Creek	+				X			X	X		X				X						801.61	
Reach 3 - Confluence with Yucaipa Creek to ~~Bunker Hill II Groundwater Subbasin Boundary (T2S/R3W-24)~~ confluence with Little San Gorgonio and Noble Creeks (Headwaters of San Timoteo Creek)	+				X			X	X		X				X						801.61	
~~Reach 4 - Bunker Hill II Groundwater Subbasin Boundary (T2S/R3W-24) t~~o ~~Confluence with Little San Gorgonio and Noble Creeks (Headwaters of San Timoteo Creek)~~	~~+~~				~~X~~			~~X~~	~~X~~		~~X~~				~~X~~						~~801.62~~	

[3] Access prohibited in some portions by San Bernardino County Flood Control District

X Present or Potential Beneficial Use   I Intermittent Beneficial Use   + Excepted from MUN (see text)

Table 3-1 Beneficial Uses

Excerpt, Page 3-19

INLAND SURFACE STREAMS	BENEFICIAL USE																				HYDROLOGIC UNIT	
	MUN	AGR	IND	PROC	GWR	NAV	POW	REC1	REC2	COMM	WARM	LWRM	COLD	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST	Primary	Secondary
Prado Area Streams																						
Chino Creek																						
~~Reach 1 - Santa Ana River confluence to beginning of concrete-lined channel south of Los Serranos Rd.~~	~~+~~							~~X~~	~~X~~		~~X~~				~~X~~	~~X~~					~~801.21~~	
Reach 1A - Santa Ana River confluence to downstream of confluence with Mill Creek (Prado Area)	+							X	X		X				X	X					801.21	
Reach 1B - Confluence with Mill Creek (Prado Area) to beginning of concrete-lined channel south of Los Serranos Rd.**	+							X	X		X				X	X					801.21	
Reach 2 - Beginning of concrete-lined channel south of Los Serranos Rd. to confluence with San Antonio Creek	+							X[1]	X			X			X						801.21	
Temescal Creek																						
~~Reach 1A – Santa Ana River Confluence to Lincoln Ave.~~	~~+~~	~~X~~	~~X~~		~~X~~			~~X[4]~~	~~X~~		~~X~~				~~X~~	~~X~~	~~X~~				~~801.25~~	
Reach 1~~B~~ – Lincoln Ave. to Riverside Canal	+							X[4]	X		X				X						801.25	

3 Access prohibited in some portions by San Bernardino County Flood Control District
4 Access prohibited in some portions by Riverside County Flood Control
** The confluence of Mill Creek is in Chino Creek, Reach 1B

X Present or Potential Beneficial Use I Intermittent Beneficial Use + Excepted from MUN (see text)

Table 3-1 Beneficial Uses

Excerpt, Page 3-25

WETLANDS (INLAND)	BENEFICIAL USE																				HYDROLOGIC UNIT	
	MUN	AGR	IND	PROC	GWR	NAV	POW	REC1	REC2	COMM	WARM	LWRM	COLD	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST	Primary	Secondary
San Joaquin Freshwater Marsh**	+							X	X		X			X	X	X					801.11	801.14
Shay Meadows	I							I	I				I		I						801.73	
Stanfield Marsh**	X							X	X				X		X	X					801.71	
~~Prado Flood Control Basin**~~ Prado Basin Management Zone [@]	+							X	X		X				X	X					~~801.25~~802.21	
San Jacinto Wildlife Preserve**	+							X	X		X			X	X	X					802.21	802.14
Glen Helen	X							X	X		X				X						801.59	

** This is a created wetlands as defined in the wetlands discussion
[@] The Prado Basin Management Zone includes the Prado Flood Control Basin, a created wetland as defined in the Basin Plan (see Chapter 3, pages 3-3 through 3-5)

X Present or Potential Beneficial Use I Intermittent Beneficial Use + Excepted from MUN (see text)

Table 3-1 Beneficial Uses, Page 3-26

~~GROUNDWATERS SUBBASIN~~ **Groundwater Management Zones**	BENEFICIAL USE																				HYDROLOGIC UNIT	
	MUN	AGR	IND	PROC	GWR	NAV	POW	REC1	REC2	COMM	WARM	LWRM	COLD	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST	Primary	Secondary
UPPER SANTA ANA RIVER BASIN																						
Big Bear Valley	X			X																	801.71	801.73
Beaumont	X	X	X	X																	801.62	801.63, 801.69
Bunker Hill – A	X	X	X	X																	801.52	801..52
Bunker Hill – B	X	X	X	X																	801.52	801.53, 801.54, 801.57, 801.58
Colton	X	X	X	X																	801.44	801.45
Chino North “maximum benefit” ++	X	X	X	X																	801.21	481.21, 481.23,
Chino 1 – “antidegradation” ++	X	X	X	X																	801.21	481.21
Chino 2 – “antidegradation” ++	X	X	X	X																	801.21	
Chino 3 – “antidegradation” ++	X	X	X	X																	801.21	
Chino East @	X	X	X	X																	801.21	801.27
Chino South @	X	X	X	X																	801.21	801.25, 801.26
Cucamonga	X	X	X	X																	801.24	801.21
Lytle	X	X	X	X																	801.59	801.42
Rialto	X	X	X	X																	801.44	801.21, 801.43
San Timoteo	X	X	X	X																	801.62	801.61
Yucaipa	X	X	X	X																	801.61	801.55, 801.63, 801.67

++ Chino North “maximum benefit” management zone applies unless Regional Board determines that lowering of water quality is not of maximum benefit to the people of the state; in that case, the Chino 1, 2 and 3 “antidegradation” management zones would apply (see also discussion in Chapter 5).

@ Chino East and South are the designations in the Chino Basin Watermaster “maximum benefit” proposal (see Chapter 5) for the management zones identified by Wildermuth Environmental, Inc. (July 2000) as Chino 4 and 5, respectively.

X Present or Potential Beneficial Use   I Intermittent Beneficial Use   + Excepted from MUN (see text)

Table 3-1 Beneficial Uses, Page 3-27

Groundwater Management Zones	BENEFICIAL USE																				HYDROLOGIC UNIT	
	MUN	AGR	IND	PROC	GWR	NAV	POW	REC1	REC2	COMM	WARM	LWRM	COLD	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST	Primary	Secondary
MIDDLE SANTA ANA RIVER BASIN																						
Arlington	X	X	X	X																	801.26	
Bedford	X	X	X	X																	801.32	801.31
Coldwater	X	X	X	X																	801.31	
Elsinore	X	X		X																	802.31	
Lee Lake	X	X	X	X																	801.34	
Riverside – A	X	X	X	X																	801.27	801.44
Riverside – B	X	X	X	X																	801.27	801.44
Riverside – C	X	X	X	X																	801.27	
Riverside – D	X	X	X	X																	801.27	801.26
Riverside – E	X	X	X	X																	801.27	
Riverside – F	X	X	X	X																	801.27	
Temescal	X	X	X	X																	801.25	

X Present or Potential Beneficial Use　　I Intermittent Beneficial Use　　+ Excepted from MUN (see text)

Table 3-1 Beneficial Uses, Page 3-28

Groundwater Management Zones	BENEFICIAL USE																				HYDROLOGIC UNIT	
	MUN	AGR	IND	PROC	GWR	NAV	POW	REC1	REC2	COMM	WARM	LWRM	COLD	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST	Primary	Secondary
SAN JACINTO RIVER BASIN																						
Garner Valley	X	X																			802.22	
Idyllwild Area	X		X																		802.22	802.21
Canyon	X	X	X	X																	802.21	
Hemet - South	X	X	X	X																	802.15	802.13, 802.21
Lakeview – Hemet North	X	X	X	X																	802.14	802.15
Menifee	X	X		X																	802.13	
Perris North	X	X	X	X																	802.11	
Perris South	X	X																			802.11	802.12, 802.13
San Jacinto – Lower	X	X	X																		802.21	802.11
San Jacinto – Upper	X	X	X	X																	802.21	802.23
LOWER SANTA ANA RIVER BASIN																						
La Habra	X	X																			845.62	
Santiago	X	X	X																		801.12	801.11
Orange	X	X	X	X																	801.11	801.13, 801.14, 845.61, 845.63
Irvine	X	X	X	X																	801.11	

X Present or Potential Beneficial Use I Intermittent Beneficial Use + Excepted from MUN (see text)

Chapter 4, Water Quality Objectives

- **p. 4-1:** **"**The narrative water quality objectives below are arranged alphabetically. They vary in applicability and scope, reflecting the variety of beneficial uses of water ~~which~~ that have been identified (Chapter 3). Where numerical ~~limits~~ objectives are ~~specified~~ specified, they generally represent the ~~maximum~~ levels that will protect ~~allow the~~ beneficial uses. ~~to continue unimpaired~~. However, in establishing waste discharge requirements for specific discharges, the Regional Board may find that more stringent levels are necessary to protect beneficial uses."

- **p. 4-11**, GROUNDWATERS: "The narrative objectives ~~which~~that are included below apply to all groundwaters, as noted. In addition, specific numerical objectives are listed in Table 4-1. With the exception of the "maximum benefit" objectives identified in this Table (see further discussion below and in Chapter 5), w~~W~~here more than one objective is applicable, the stricter shall apply."

- **Revise the following groundwater narrative water quality objectives**

Chloride
Excess chloride concentrations lead primarily to economic damage rather than public health hazards. Chlorides are considered to be among the most troublesome anion in water used for industrial or irrigation purposes since they significantly affect the corrosion rate of steel and aluminum and can be toxic to plants. A safe value for irrigation is considered to be less than 175mg/L of chloride. Excess chlorides affect the taste of potable water, so drinking water standards are generally based on potability rather than on health. The secondary drinking water standard for chloride is 500mg/L.

~~The chloride objectives listed in Table 4-1~~ Chloride concentrations shall not ~~be~~ exceed~~ed~~ 500 mg/L in groundwaters of the region designated MUN as a result of controllable water quality factors.

Dissolved Solids, Total (Total Filtrable Residue)
The Department of Health Services recommends that the concentration of total dissolved solids (TDS) in drinking water be limited to ~~1000~~ 500 mg/L (secondary drinking water standard), due to taste considerations. For most irrigation uses, water should have a TDS concentration under 700 mg/L. Quality related consumer cost analyses have indicated that a benefit to consumers exists if water is supplied at or below 500mg/L TDS.

The dissolved mineral content of the waters of the region, as measured by the total dissolved solids test ("Standard Methods for the Examination of Water and Wastewater, 20~~16~~th Ed.," ~~1985~~1998: ~~209B~~2540C (180˚C), p.~~95~~2-56), shall not exceed the specific objectives listed in Table 4-1 as a result of controllable water quality factors. (See also discussion of management zone TDS and nitrate nitrogen water quality objectives below).

Hardness (as $CaCO_3$)
The major detrimental effect of hardness is economic. Any concentration (reported as mg/L $CaCO_3$) greater than 100mg/L results in the increased use of soap, scale buildup in utensils in domestic uses, and in plumbing. Hardness in industrial cooling waters is generally objectionable above 50mg/L.

~~The objectives listed in Table 4-1 shall not be exceeded as a result of controllable water quality factors. If no hardness objective is listed in Table 4-1, the~~ The hardness of receiving waters used for municipal supply (MUN) shall not be increased as a result of waste discharges to levels that adversely affect beneficial uses.

Nitrate
High nitrate concentrations in domestic water supplies can be toxic to human life. Infants are particularly susceptible and may develop methemoglobinemia (blue baby syndrome). The primary drinking water standard for nitrate (as NO_3) is 45 mg/L or 10 mg/L (as N).

Nitrate-nitrogen concentrations listed in Table 4-1 shall not be exceeded as a result of controllable water quality factors. ***(See also discussion of management zone TDS and nitrate nitrogen water quality objectives below).***

Sodium
The presence of sodium in drinking water may be harmful to persons suffering from cardiac, renal and circulatory diseases. It can contribute to taste effects, with the taste threshold depending on the specific sodium salt. Excess concentrations of sodium in irrigation water reduce soil permeability to water and air. The deterioration of soil quality because of the presence of sodium in irrigation water is cumulative and is accelerated by poor drainage.

The California Department of Health Services and the U.S. Environmental Protection Agency have not provided a limit on the concentration of sodium in drinking water. ~~The sodium objectives listed in Table 4-1~~ Sodium concentrations shall not ~~be~~ exceed~~ed~~ 180 mg/L in groundwaters designated MUN as a result of controllable water quality factors.

Groundwaters designated AGR shall not exceed a sodium absorption ratio (SAR[1]) of 9 as a result of controllable water quality factors.

Sulfate
Excessive sulfate, particularly magnesium sulfate ($MgSO_4$), in potable waters can lead to laxative effects, but this effect is temporary. There is some taste effect from magnesium sulfate in the range of 400-600mg/L as $MgSO_4$. The secondary drinking water standard for sulfate is 500mg/L. Sulfate concentrations in waters native to this region are normally low, less than 40mg/L, but imported Colorado River water contains approximately 300mg/L of sulfate.

~~The objectives listed in Table 4-1~~ Sulfate concentrations shall not ~~be~~ exceed~~ed~~ 500 mg/L in groundwaters of the region designated MUN as a result of controllable water quality factors.

- **Add the following at the end of the GROUNDWATERS objectives:**

Management Zone TDS and Nitrate-nitrogen Water Quality Objectives

The TDS and nitrate-nitrogen objectives specified in the 1975 and 1984 Basin Plans, and initially in this 1995 Basin Plan, were based on an evaluation of groundwater samples from the five year period 1968 through 1972. This period represented ambient quality at the time of preparation of the 1975 Basin Plan. As part of the 2004 update of the TDS/Nitrogen management plan in the Basin Plan, historical ambient quality was reviewed using additional data and rigorous statistical procedures. This update also included characterization of current water quality. A comprehensive description of the methodology employed is published in the "Final Technical Memorandum for Phase 2A of the Nitrogen-TDS Study" (Wildermuth

[1] Sodium absorption ratio (SAR) = $\dfrac{Na}{[1/2\,(Ca + Mg)]^{1/2}}$

where Sodium (Na), Calcium (Ca) and Magnesium (Mg) are concentrations in milliequivalents per liter

Environmental Inc., July 2000). This effort, coupled with "maximum benefit" demonstrations by certain agencies in the watershed (see further discussion below and in Chapter 5), culminated in the adoption of the TDS and nitrate-nitrogen objectives specified in Table 4-1.

For the most part, the TDS and nitrate-nitrogen water quality objectives for each management zone are based on historical concentrations of TDS and nitrate-nitrogen from 1954 through 1973. This period brackets 1968, when the State Board adopted Resolution No. 68-16, "Policy with Respect to Maintaining High Quality Waters". This Resolution establishes a benchmark for assessing and considering authorization of degradation of water quality. The 20-year period was selected in order to ensure that at least 3 data points in each management zone would be available to calculate historical ambient quality. In general, the following steps were taken to calculate the TDS and nitrate objectives:

a. Annual average TDS and nitrate-nitrogen data from 1954 – 1973 for each well in a management zone were compiled;
b. For each well, the data were statistically analyzed. The mean plus "t" (Student's t) times the standard error of the mean was calculated;
c. A rectangular grid across all management zones was overlaid. Groundwater storage within each grid was computed; and,
d. The volume-weighted TDS and nitrate-nitrogen concentration for each management zone was computed. These concentrations are the calculated historical ambient quality for each zone. [2]

These volume-weighted TDS and nitrate-nitrogen concentrations for each management zone were typically identified as the appropriate objectives. However, it is important to note that if the calculated nitrate-nitrogen concentration exceeded 10 mg/L, the nitrate-nitrogen objective was set to 10 mg/L to be consistent with the primary drinking water standard.

Finally, in some cases, certain agencies proposed alternative, less stringent TDS and nitrate-nitrogen objectives for specific management zones, based on additional consideration of antidegradation requirements and the factors specified in Water Code Section 13241 (see below and Chapter 5). Table 4-1 includes both the historical ambient quality TDS and nitrate-nitrogen objectives (the "antidegradation" objectives) and the objectives based on this additional consideration (the "maximum benefit" objectives) for specific management zones. Chapter 5 specifies detailed requirements pertaining to the implementation of these objectives.

- **Revise the requirements pertaining to Santa Ana River baseflow sampling (p. 4-15) as follows:**

Base flow sampling…. Excerpt, p. 4-15, 4-16.

~~The quantity and quality of base flow is most consistent during the month of August. At that time of year the influence of storm flows and nontributary flows is at a minimum. There is usually no water impounded behind Prado Dam. The volumes of rising water and nonpoint source discharges tend to be low during that time. The major component of base flow in August, therefore, is municipal wastewater. For these reasons, this period has been selected as the time when base flow will be measured and its quality determined. This information will subsequently allow the evaluation of available assimilative capacity, which serves to verify~~

[2] In limited cases, data for ammonia-nitrogen and nitrite-nitrogen as well as nitrate-nitrogen were available and included in the analysis. The ammonia-nitrogen and nitrite-nitrogen values were insignificant. The objectives are thus expressed as nitrate-nitrogen, even where ammonia-nitrogen and nitrite-nitrogen data were included in the analysis.

~~the accuracy of the wasteload allocation. In order to determine whether the water quality and quantity objectives for base flow in Reach 3 are being met, the Regional Board will collect a series of grab and composite samples during August of each year. The results will also be compared with the continuous monitoring data collected by USGS and data from other sources. Additional sampling in Reach 3 will help evaluate the effects of the various constituents of base flow.~~

In order to determine whether the water quality and quantity objectives for base flow in Reach 3 are being met, the Regional Board will collect a series of grab and composite samples when the influence of storm flows and nontributary flows is at a minimum. This typically occurs during August and September. At this time of year, there is usually no water impounded behind Prado Dam. The volumes of storm flows, rising water and nonpoint source discharges tend to be low. The major component of base flow at this time is municipal wastewater. The results of this sampling will be compared with the continuous monitoring data collected by USGS and data from other sources. These data will be used to evaluate the efficacy of the Regional Board's regulatory approach, including the TDS and nitrogen wasteload allocations (see Chapter 5). Additional sampling in Reach 3 by the Board and other agencies will help evaluate the fate and effects of the various constituents of base flow, including the validity of the 50% nitrogen loss coefficient (discussed in Chapter 5).

- **Add the following at the end of Chapter 4 (before Table 4-1)**

Prado Basin Management Zone

As discussed in Chapter 3 – Beneficial Uses, the Prado Basin Management Zone (PBMZ) is generally defined as a surface water feature within the Prado Basin. It is defined by the 566-foot elevation above mean sea level along the Santa Ana River and the four tributaries to the Santa Ana River in the Prado Basin (Chino Creek, Temescal Creek, Mill Creek and Cucamonga Creek). Nitrogen, TDS and other water quality objectives that have been established for these surface waters that flow within the proposed PBMZ are shown in Table 4-1. For the purpose of regulating discharges that would affect the PBMZ and downstream waters, these surface water objectives apply. This application of the existing surface water objectives assures continued water quality and beneficial use protection for waters within and downstream of the PBMZ.

"MAXIMUM BENEFIT" WATER QUALITY OBJECTIVES

As part of the 2004 update of the TDS/Nitrogen Management plan in the Basin Plan, several agencies proposed that alternative, less stringent TDS and/or nitrate-nitrogen water quality objectives be adopted for specific groundwater management zones and surface waters. These proposals were based on additional consideration of the factors specified in Water Code Section 13241 and the requirements of the State's antidegradation policy (State Board Resolution No. 68-16). Since the less stringent objectives would allow a lowering of water quality, the agencies were required to demonstrate that their proposed objectives would protect beneficial uses, and that water quality consistent with maximum benefit to the people of the state would be maintained.

Appropriate beneficial use protection/maximum benefit demonstrations were made by the Chino Basin Watermaster/Inland Empire Utilities Agency, the Yucaipa Valley Water District and the City of Beaumont/San Timoteo Watershed Management Authority to justify alternative "maximum benefit" objectives for the Chino North, Cucamonga, Yucaipa, Beaumont and San Timoteo groundwater management zones. These "maximum benefit" proposals, which are described in detail in Chapter 5 – Implementation, entail commitments by the agencies to implement specific projects and programs. While these agencies' efforts to develop these proposals indicate their strong interest to proceed with these commitments, unforeseen circumstances may impede or preclude it. To address this possibility, this Plan includes both the "antidegradation" and "maximum benefit" objectives for the subject waters (See Table 4-1). Chapter 5 specifies the requirements for implementation of these objectives. Provided that these agencies' commitments are met, then the agencies have demonstrated maximum benefit, and the "maximum benefit" objectives included in Table 4-1 for these waters apply for regulatory purposes. However, if the Regional Board finds that these commitments are not being met and that "maximum benefit" is thus not demonstrated, then the "antidegradation" objectives for these waters will apply. Chapter 5 also describes the mitigation requirements that will apply should discharges based on "maximum benefit" objectives occur unsupported by the demonstration of "maximum benefit".

- **Delete FIGURE 4-1 SANTA ANA REGION GROUNDWATER BASINS (there is no textual reference to this figure)**
- **Delete FIGURE 4-2 SANTA ANA REGION GROUNDWATER BASINS (TDS, mg/L) (there is no textual reference to this figure)**
- **Delete FIGURE 4-3 SANTA ANA REGION GROUNDWATER BASINS (NO_3-**N mg/L) there is no textual reference to this figure)
- **Revise p. 4-30, 4-31, 4-32, 4-38 (Table 4-1 WATER QUALITY OBJECTIVES – INLAND SURFACE STREAMS AND WETLANDS) as shown in the following pages.**
- **Delete pages 4-39 through 4-41, Table 4-1 WATER QUALITY OBJECTIVES - GROUNDWATER SUBBASINS and replace with the following new pages 4-39 through 4-41.**

Table 4-1 WATER QUALITY OBJECTIVES, excerpt, page 4-30, 4-31

INLAND SURFACE STREAMS	Water Quality Objective (mg/L)							HYDROLOGIC UNIT	
	TDS	Hard.	Na	Cl	TIN	SO_4	COD	Primary	Secondary
San Timoteo Area Streams									
San Timoteo Creek									
~~Reach 1 - Santa Ana River Confluence to Gage at San Timoteo Canyon Road~~	~~290~~	~~175~~	~~60~~	~~60~~	~~6~~	~~45~~	~~15~~	~~801.52~~	~~801.53~~
Reach 1A – Santa Ana River Confluence to Barton Road	--	--	--	--	--	--	--	801.52	801.53
Reach 1B – Barton Road to Gage at San Timoteo Canyon Rd. u/s of Yucaipa Valley WD discharge	--	--	--	--	--	--	--	801.52	801.53
Reach 2 - Gage at San Timoteo Canyon Road to Confluence with Yucaipa Creek	~~290~~--	~~175~~--	~~60~~--	~~60~~--	~~6~~--	~~45~~--	~~15~~--	801.52	801.62
Reach 3 - Confluence with Yucaipa Creek to ~~Bunker Hill II Groundwater Subbasin Boundary(T2S/R3W-24)~~ confluence with Little San Gorgonio and Noble Creeks (Headwaters of San Timoteo Creek)	~~290~~--	~~175~~--	~~60~~--	~~60~~--	~~6~~--	~~45~~--	~~15~~--	801.62	
~~Reach 4 - Bunker Hill II Groundwater Subbasin Boundary (T2S/R3W-24) to Confluence with Little San Gorgonio and Noble Creeks (Headwaters of San Timoteo Creek)~~	~~290~~	~~175~~	~~60~~	~~60~~	~~6~~	~~45~~	~~15~~	~~801.62~~	

\+ Numeric objectives have not been established; narrative objectives apply

** Surface water objectives not established; underlying Management Zone objectives apply. Biological quality protected by narrative objectives

Table 4-1 WATER QUALITY OBJECTIVES, excerpt, page 4-32

INLAND SURFACE STREAMS	Water Quality Objective (mg/L)							HYDROLOGIC UNIT	
	TDS	Hard.	Na	Cl	TIN	SO4	COD	Primary	Secondary
Prado Area Streams									
Chino Creek									
~~Reach 1 – Santa Ana River confluence to beginning of concrete-lined channel south of Los Serranos Rd.~~	~~550~~	~~240~~	~~75~~	~~75~~	~~8~~	~~60~~	~~15~~	~~801.21~~	
Reach 1A – Santa Ana River confluence to downstream of confluence with Mill Creek (Prado Area) – Base Flow *	700	350	110	140	10**	150	30	801.21	
Reach 1B - Confluence of Mill Creek (Prado Area) to beginning of concrete-lined channel south of Los Serranos Rd.	550	240	75	75	8	60	15	801.21	
Reach 2 - Beginning of concrete-lined channel south of Los Serranos Rd. to confluence with San Antonio Creek +								801.21	
Temescal Creek									
~~Reach 1A – Santa Ana River Confluence to Lincoln Ave.~~	~~800~~	~~400~~	~~100~~	~~200~~	~~6~~	~~70~~	~~–~~	~~801.25~~	
Reach 1~~B~~ - Lincoln Ave. to Riverside Canal+	--	--	--	--	--	--	--	801.25	

* Additional objective: Boron 0.75 mg/L
** Total nitrogen, filtered sample
\+ Numeric objectives have not been established; narrative objectives apply

Table 4-1 Water Quality Objectives, excerpt, page 4-38

WETLANDS (INLAND)	Water Quality Objective (mg/L)		HYDROLOGIC UNIT	
	TDS	TIN	Primary	Secondary
San Joaquin Freshwater Marsh** ##	2000	13	801.11	
Shay Meadows+	--	--	801.73	
Stanfield Marsh+**	--	--	801.71	
~~Prado Flood Control Basin **~~ Prado Basin Management Zone @	--	--	~~802.15~~801.21	
San Jacinto Wildlife Preserve+**	--	--	802.21	802.14
Glen Helen+	--	--	801.59	

Additional objective for San Joaquin Freshwater Marsh: COD 90 mg/L.
\+ Numeric objectives have not been established; narrative objectives apply
** This is a created wetlands as defined in the wetlands discussion (see Chapter 3)
@ includes the Prado Flood Control Basin, a created wetland as defined in the wetlands discussion (see chapter 3). Chino Creek, Reach 1A, Chino Creek, 1B, Mill Creek (Prado Area) and Santa Ana River, Reach 3 TDS and TIN numeric objectives apply (see discussion).

Table 4-1 Water Quality Objectives, Page 4-39

Groundwater Management Zones	Water Quality Objective (mg/L)		HYDROLOGIC UNIT	
	TDS	NO_3-N	Primary	Secondary
UPPER SANTA ANA RIVER BASIN				
Big Bear Valley*	220	5.0	801.71	801.73
Beaumont "maximum benefit"++	330	5.0	801.62	801.63, 801.69
Beaumont "antidegradation" ++	230	1.5	801.62	801.63, 801.69
Bunker Hill – A	310	2.7	801.51	801.52
Bunker Hill – B	330	7.3	801.52	801.53, 801.54, 801.57, 801.58
Colton	410	2.7	801.44	801.45
Chino – North "maximum benefit" ++	420	5.0	801.21	481.21, 481.23, 481.22, 801.21, 801.23, 801.24, 801.27
Chino 1– "antidegradation" ++	280	5.0	802.21	481.21
Chino 2 – "antidegradation" ++	250	2.9	801.21	
Chino 3 – "antidegradation" ++	260	3.5	801.21	
Chino – East @	730	10.0	801.21	801.27
Chino – South @	680	4.2	801.21	801.26
Cucamonga "maximum benefit" ++	380	5.0	801.24	801.21
Cucamonga "antidegradation" ++	210	2.4	801.24	801.21
Lytle	260	1.5	801.41	801.42
Rialto	230	2.0	801.41	801.42

* Additional objectives for Bear Valley: Hardness 225 mg/L; Sodium 20 mg/L; Chloride 10 mg/L; Sulfate 20 mg/L

++ "Maximum benefit" objectives apply unless Regional Board determines that lowering of water quality is not of maximum benefit to the people of the state; in that case, "antidegradation" objectives apply (For Chino North, antidegradation objectives for Chino 1, 2, 3 would apply if maximum benefit is not demonstrated). (see discussion in Chapter 5).

@ Chino East and South are the designations in the Chino Basin Watermaster "maximum benefit" proposal (see Chapter 5) for the management zones identified by Wildermuth Environmental, Inc., (July 2000) as Chino 4 and Chino 5, respectively.

Table 4-1 WATER QUALITY OBJECTIVES, page 4-40

Groundwater Management Zones	Water Quality Objective (mg/L)		HYDROLOGIC UNIT	
	TDS	NO_3-N	Primary	Secondary
San Timoteo "maximum benefit" ++	400	5.0	801.62	
San Timoteo "antidegradation" ++	300	2.7	801.62	
Yucaipa "maximum benefit" ++	370	5.0	801.61	801.55,801.54, 801.56, 801.63, 801.65, 801.66, 801.67
Yucaipa "antidegradation" ++	320	4.2	801.61	801.55,801.54, 801.56, 801.63, 801.65, 801.66, 801.67
MIDDLE SANTA ANA RIVER BASIN				
Arlington	980	10	801.26	
Bedford **	--	--	801.32	
Coldwater	380	1.5	801.31	
Elsinore	480	1.0	802.31	
Lee Lake**	--	--	801.34	
Riverside – A	560	6.2	801.27	
Riverside – B	290	7.6	801.27	
Riverside – C	680	8.3	801.27	
Riverside – D	810	10.0	801.27	
Riverside – E	720	10.0	801.27	
Riverside – F	660	9.5	801.27	
Temescal	770	10.0	801.25	

** Numeric objectives not established; narrative objectives apply

++ "Maximum benefit" objectives apply unless Regional Board determines that lowering of water quality is not of maximum benefit to the people of the state; in that case, "antidegradation" objectives would apply (see discussion in Chapter 5).

Table 4-1 WATER QUALITY OBJECTIVES, page 4-41

Groundwater Management Zones	Water Quality Objective (mg/L)		HYDROLOGIC UNIT	
	TDS	NO_3-N	Primary	Secondary
SAN JACINTO RIVER BASIN				
Garner Valley*	300	2.0	802.22	
Idyllwild Area**	--	--	802.22	802.21
Canyon	230	2.5	802.21	
Hemet - South	730	4.1	802.15	802.21
Lakeview – Hemet North	520	1.8	802.14	802.15
Menifee	1020	2.8	802.13	
Perris North	570	5.2	802.11	
Perris South	1260	2.5	802.11	802.12, 802.13
San Jacinto – Lower	520	1.0	802.21	
San Jacinto – Upper	320	1.4	802.21	802.23
LOWER SANTA ANA RIVER BASIN				
La Habra**	--	--	845.62	
Santiago **	--	--	801.12	
Orange	580	3.4	801.11	801.13, 845.61, 801.14
Irvine	910	5.9	801.11	

* Additional objectives for Garner Valley: Hardness 100 mg/L; Sodium 65 mg/L; Chloride 30 mg/L; Sulfate 40 mg/L
** Numeric objectives not established; narrative objectives apply